Australia, Wet or Dry, North or South:

Addressing environmental impacts and the exclusion of Aboriginal peoples in northern water development

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I. INTRODUCTION

Within Australia almost since colonisation, there have been debates about whether water supply would pose a 'limit' to expansion of settlement. The seminal work by economist Bruce Davidson, 'Australia Wet or Dry?' in the mid-twentieth century critically examined the public money invested in large-scale irrigated agriculture in the north of the continent, and indirectly critiqued irrigation schemes in the Murray Darling Basin. Davidson coined the term 'the Northern Myth' to describe a widely held belief in the ability of Northern Australia to accommodate vastly expanded irrigated agricultural operations because of abundant water and land.

This paper examines the current policy promoting northern development, including proposed significant extensions to dams and other water supply projects in Northern Australia. It places the latest push for northern water development in the broader historical context of Australian water resource management, finding continual reiteration of ideas that engineers can 'create water'[1] and find technical 'solutions' to overcome the limitations of a 'drought-ridden continent'.[2]

By contrast, we argue future policy directions in Northern Australia must draw on the lessons of past water resource policy with respect to two crucial aspects: redressing the historical and current exclusion of Aboriginal peoples' rights to water, and the embedding of environmental values in strategic water planning. In particular, there are valuable lessons to be learnt from extensive reforms to water law, policy and institutional practice, initiated in 1994 in the Murray Darling Basin to address the environmental effects of over-allocation of water allocations in southern basin states, and culminating in the National Water Initiative. A key component that emerged from the National Water

[1] Lin R Crase, Suzanne M O'Keefe and Brian E Dollery, 'The Fluctuating Political Appeal of Water Engineering in Australia' (2009) 2 *Water Alternatives* 441, 440.

[2] Leah M Gibbs, 'Just Add Water: Colonisation, Water Governance, and the Australian Inland' (2009) 41 *Environment and Planning A* 2964, 2967.

Initiative, as well as evident in the deficiencies in previous irrigation and damming projects in northern Australia, is the need for strategic planning and extensive consultation to occur prior to new development.

Strategic planning must include extensive and meaningful engagement with Aboriginal peoples in planning, development and governance.[3] Also, moving beyond effective consultation, it must address the issue of substantive Indigenous water rights, including commercial rights to water. In this respect, this paper compliments Paul Martin's paper in this Special Edition, which similarly argues for greater recognition of Aboriginal peoples' economic and social development in Northern Australia development policy on social equity grounds.

Finally, any water market system that is developed for Northern Australia must be informed by National Water Initiative principles relating to the environment and must strongly embed environmental values in planning and water governance. Currently, northern development policy contains very little mention of National Water Initiative principles.

II. THE ELUSIVE WATER CHASE IN AUSTRALIA AND THE MYTH OF NORTHERN DEVELOPMENT

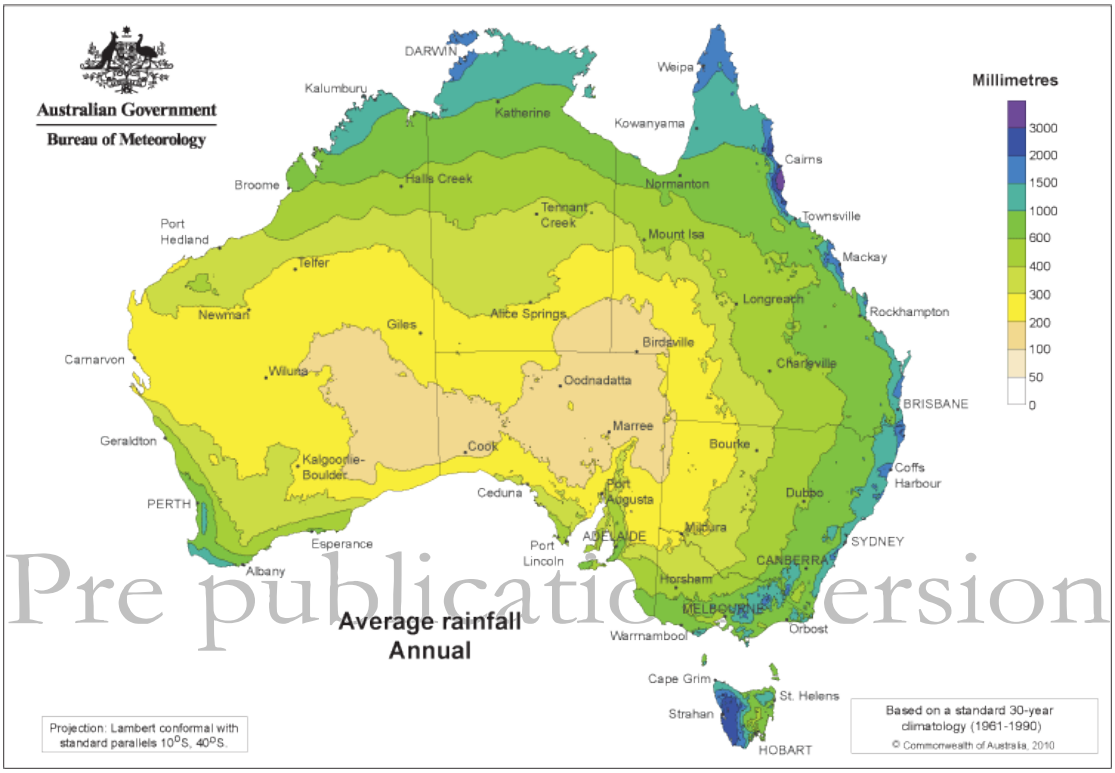
A perceived imbalance between a Dry South and a Wet North has informed policy and water law in Australia — the world's driest continent that supports a permanent population.[4] Much of Australia's inland area receives less than 500 millimetres of rainfall and the low rainfall is exacerbated by high evaporation rates, however the coastal fringe has moderate rainfall.[5] These climatic features combine to produce the distinctive geomorphologic characteristics of Australian river systems. Many of Australia's 246 river basins do not have permanent flow regimes but are marked by periods of intermittent flow. Australia is heavily dependent upon groundwater with a large aquifer system, the

[3] The term 'Indigenous people' comprises both Aboriginal and Torres Strait Islander communities. As this discussion in focussed on Northern Australia, this paper uses 'Aboriginal peoples' in relation to the relevant communities affected, and 'Indigenous' in relation to a broader discussion of water rights for Australian Indigenous people.

[4] Peter Cullen, et al, *Blueprint for a Living Continent: A Way Forward from the Wentworth Group of Concerned Scientists* (2002) at 5 http://www.wwf.org.au/downloads/blueprint_for_a_living_continent.pdf

[5] Climatic data is available from Australian Government Bureau of Meteorology, *Climate Report 2014,* http://www.bom.gov.au/climate/annual_sum/2014/index.shtml

Great Artesian Basin, supplying water for inland uses.[6] Australia also experiences cycles of droughts and severe flooding. There is high variability in the geographic and seasonal distribution of Australian precipitation.[7] Some areas in monsoonal northern Australia experience high total rainfall, but this amount may be seasonally skewed in its distribution.[8] The spatial differences in average annual rainfall across Australia are graphically illustrated in the map below.



The south-eastern part of the continent and a smaller section of the south west are the most intensively settled areas, supporting major urban areas and agricultural hinterlands.[9] The northern areas are less intensively developed but have a range of land uses from

[6] Poh-Ling Tan, 'Sustainable Management of the Great Artesian Basin: An Analysis based on Law and Environmental Economics', (2004) 9 *Australasian Journal of Natural Resources Law and Policy*, 255.

[7] John Pigram, *Issues in the Management of Australia's Water Resources* (Longman Cheshire, 1986) 32- 44.

[8] Australian Government Bureau of Meteorology, *Map of Average Annual, Seasonal and Monthly Rainfall 1961-1990* http://www.bom.gov.au/jsp/ncc/climate_averages/rainfall/index

[9] See generally Australian Government Bureau of Statistics, 'Geographic Distribution of the Population', *Australian Yearbook 2012* http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1301.0~2012~Main%20Features~Geographic%20distribution%20of%20the%20population~49

mining to scattered agricultural developments. Aboriginal tenures of various forms, from statutory land rights to native title determinations are concentrated in the north.[10]

The bare 'facts' of a perceived geographical 'mismatch' between the dry south and the wet north, together with the concentration of settlement in the south periodically have led to calls to develop the 'wasted' water resources of the north.[11] The schemes have taken several forms, but basically include projects that aim to reduce pressure on southern, intensively-irrigated regions (such as large pipelines that would allow water to be distributed to the south); and those that seek to develop water resources as a catalyst for the development and expansion of settlement in the North.[12]

A northern development agenda has been a political commitment for many federal governments, particularly where the national interest is seen to coincide with the expansion of the irrigated agricultural industry. In concert, there have been ongoing debates — almost since the beginning of the colonial period[13] — about whether a lack of water in inland areas would pose an ultimate limit to settlement. Irrigated agriculture initially was seen as overcoming these limits by 'making the desert bloom'. Even early on though there were also dissenting voices to the economic boosterism associated with irrigation schemes.

A. *Australia Wet or Dry: Davidson and the Beginnings of Re-Evaluation of Irrigated Agriculture*

The dominant orthodoxy of water resource development came under scrutiny in the mid-twentieth century. Davidson was among the commentators who focused on the economic, as well as the rainfall limits to irrigated agricultural development.[14] Davidson concluded that irrigated agriculture was not economically 'efficient'. He turned his attention to the Ord River Project in the Kimberley, the major irrigation scheme in the North, to debunk the 'Northern Myth'.[15] In particular, Davidson argued that the damming of the Ord River — first mooted in the early twentieth century, and achieved

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[10] For distribution of native title determinations see the National Native Title Tribunal website http://www.nntt.gov.au/Maps/Determinations_map.pdf.

[11] Lesley Head, 'The Northern Myth Revisited? Aborigines, Environment and Agriculture in the Ord River Irrigation Scheme, Stages One and Two' (1999) 30 *Australian Geographer* 141, 153.

[12] Gibbs, above n 2, 2968.

[13] Ibid 2964–69.

[14] Bruce Davidson, *Australia Wet or Dry: The Physical and Economic Limits to the Expansion of Irrigation*, Melbourne University Press 1969.

[15] BR Davidson, *The Northern Myth: A Study of the Physical and Economic Limits to Agricultural and Pastoral Development in Tropical Australia* (Melbourne University Press, 1965).

at astronomical cost in 1972 with the main dam creating Lake Argyle — was a waste of Commonwealth and state funds. Agricultural expansion north of the tropic of Capricorn was not economically rational, Davidson argued, due to harsh seasonal conditions, lack of labour, distance from markets, pests, and inappropriate soils. Instead, money should be channeled into dry-land agricultural innovation.[16] Arguments of this character ultimately achieved some traction; but irrigated agriculture now has re-emerged as a serious northern development 'article of faith'. A commonly identified discourse underpinning Northern development scheme is that of 'destiny and development'. The discourse is evident in justifications advanced for the Ord River project, as well as avoiding water and land resources going to 'waste'.[17] Lesley Head finds 'three colonial themes persisted ... the empty landscape, the invisible Aborigine, and the idealization of agricultural land use'.[18] These ideas continue to permeate northern development plans despite the increasing attention given to Aboriginal and environmental issues.[19] They are 'at least as powerful in driving the process as have any rational or quantitative assessments.'[20]

Historically, the commitment to irrigation has been a strong impetus for development.[21] Until recently, Australian water management was largely predicated upon efficient utilisation of water for instrumental purposes.[22] Irrigation constitutes by far the largest consumptive use of water within Australia.[23] A high proportion of irrigation occurs in the Murray Darling Basin, (one seventh of Australia's land mass). While only 10% of the basin is formally categorised as over-allocated, the entire Murray Darling Basin might be considered 'over-allocated' because there is insufficient environmental water to deliver

[16] Ibid.

[17] Head, above n 11, 153.

[18] Ibid 141.

[19] Ibid 142.

[20] Ibid.

[21] Cullen, et al, above n 1, 5.

[22] Lin Crase 'An Introduction to Australian Water Policy' in Lin Crase (ed), *Water Policy in Australia: The Impact of Change and Uncertainty* (Resources for the Future, 1st ed, 2008) 2.

[23] See for example, 'the 'Agriculture' industry consumed the largest volume of water' totalling 12,780 GL and 65% of water use in Australia in 2012-13: Australian Government Bureau of Statistics, *Water Account — Australia — 2012-2013* http://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/4610.0Main%20Features22012-13?opendocument&tabname=Summary&prodno=4610.0&issue=2012-13&num=&view=

sustainability and protect ecological functions.[24] This history of over-allocation has significant implications for northern development policy. As Garrick notes,

> [p]ast institutional choices and technologies opened some options for water resource development and allocation, and foreclosed others. Path dependency provides a lens for understanding the direction and pace of institutional change in water allocation reforms.[25]

A significant proportion of Australia's other catchments and ground water supplies also have allocations exceeding available sustainable flow.

Growing research demonstrates that dam building rests upon a mythology that does not concede the realities of Australia's arid and highly variable ecological systems.[26] Nevertheless, Australians continue to place trust in dams and other large-scale infrastructure projects for irrigated water supply to 'secure the future'.[27] These rationales were challenged by water law reforms in the latter part of the twentieth century.[28]

III. WATER DEVELOPMENT: COLONISATION TO THE MID-TWENTIETH CENTURY

As water use was strongly linked to development, early legal constructs reflected a resource-oriented approach. In many areas, settlement displaced Indigenous peoples who had developed sophisticated water access rights.[29] Under common law riparian doctrines, prevalent until the late nineteenth century, rights to water were derivate of property in land. Thus land holding was a defining factor in access to water. Moreover, water that did not flow in a defined river channel could be accessed by a landowner without restriction. Thus ground and surface waters — very significant parts of the total flow volume of many Australian drainage basins — could be harvested without limit. The common law

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[24] Whether sustainable diversion limits in the Basin are adequate is strongly contested, see for example, Daniel Connell, *Water Politics in the Murray-Darling Basin* (Federation Press, 2007).

[25] Dustin Garrick, *Water Allocation in Rivers under Pressure* (Edward Elgar Publishing, 2015) 74.

[26] Warren Musgrave, 'Historical Development of Water Resources in Australia' in Crase, above n 22, 38.

[27] Crase, above n 21, 7.

[28] See below, IV.

[29] Sue Jackson and Marcia Langton, 'Trends in the Recognition of Indigenous Water Needs in Australian Water Reform: The Limitations of "Cultural" Entitlements in Achieving Water Equity' (2011) 22 *Journal of Water Law* 109.

favoured user rights[30] but the constraints of this model became apparent in the water-scare southern and interior areas of the Australian mainland.

As European colonisation spread, the unique physical setting together with the needs of rapidly growing colonies required a different regulatory framework.[31] The droughts in the 1880s underscored the inadequacy of the common law.[32] Water became a public 'responsibility', institutionalised in an expanding statutory framework.[33] In the late nineteenth century, several Australian states vested surface and ground water resources in the Crown, and implemented water licences and concessions to authorise the 'consumptive use' of water, focused upon irrigated agriculture.

Damming rivers to enhance land productivity occurred in association with social and legal trends toward more intensive development.[34] The river basin became the key organising construct for managing rivers in agricultural and primary-producing regions. River basins were integral to ideals of tightly-managed hydrological regimes as a 'tenet of productivism.'[35] At the turn of the twentieth century,

> having vested control of water, created the necessary bureaucratic agencies, and having the necessary political will to proceed the [(Murray-Darling] basin states were ready to construct the storages and infrastructure to enable the establishment of substantial areas of government sponsored irrigation farming.[36]

The policy (and extensive public funding) that initiated the irrigation schemes of the early-twentieth century, including those in the Murray-Darling Basin, was based on an imperative to irrigate large areas of the dry inland within a worldview of nation-building.[37] In contrast, water more typically now is described as 'as a scarce resource to be used to its highest economic value as well as for strategic environmental use to maintain

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30 See Poh-Ling Tan, 'Legal Issues Relating to Water Use', in Land and Water Australia, *Property Rights and Responsibilities, Current Australian Thinking* (AGPS 2002) 13-42, at 15.

31 Ibid at 16.

32 See generally B Evans and P Howsam, 'A Critical Analysis of the Riparian Rights of Water Abstractors in England and Wales' (2005) 16(3) *Journal of Water Law* 90.

33 Joseph Powell, *Watering the Garden State Water, Land and Community in Victoria 1834-1988* (Allen & Unwin 1989), 100-104.

34 François Molle, 'River-Basin Planning and Management: The Social Life of a Concept' (2009) 40 *Geoforum* 484, 484.

35 Ibid, 486.

36 Warren Musgrave, 'Historical Development of Water Resources in Australia', in above n 22, 35.

37 See Robert Wooding, 'Populate, Parch and Panic: Two Centuries of Dreaming about Nation Building in Inland Australia' in Alexander Walter Gardner et al, *Water Resources Law* (LexisNexis Butterworths, 2009). 57, 58.

environmental assets."[38] From the early 1980s significant and sustained concerns were raised about environmental impacts.[39] The legal and institutional structures built around state-controlled river basins, large-scale dams and irrigated agriculture began to rupture, precipitating a phase of major water law reform.

A. Indigenous Water Rights Under Colonial and Post-Colonial Governance

The Australian water law frameworks described above historically excluded Indigenous peoples. Upon acquisition of sovereignty, the British Crown asserted sovereign title to the territory of Australia. As a consequence, under the doctrine of the reception, Australia inherited the UK riparian system of water regulation.[40] As the common law system was pre-eminent, neither the British Crown nor subsequent Australian Governments acknowledged that Indigenous Australians held 'customary' rights with respect to land or resources until the late twentieth century.[41] Some areas of lands were specifically reserved for Aboriginal peoples, but most did not hold land titles allocated by the settler state.

As indicated, water resources in most jurisdictions were vested in government instrumentalities to enable development of public infrastructure for water, and to regulate the allocation processes.[42] State and territory governments continue to hold vested water resources and to allocate water via various statutory water licences and permits.[43] The nexus linking water use to land-holding as a basis for agricultural development remained from colonisation until the late twentieth century.[44] Indigenous groups, who typically did not hold Torrens (registered) land titles, did not enjoy access to statutory water entitlements, and could not, therefore, lawfully make use of water on or adjacent to their traditional territories.[45]

Many areas where Indigenous peoples had 'connection' to land and waters remained excluded from the national water law reform process until relatively recently. The Australian High Court only recognised the 'native title' of Aboriginal and Torres Strait Islander peoples in Australia in 1992.[46] This was followed by the *Native Title Act 1993* (Cth) as a statutory regime for claiming native title, and inter alia for agreement-making that affected native title.[47] Accordingly, Indigenous-specific rights to land or water resources were not determined until the late twentieth century. As discussed in V, the

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[38] Catherine Gross and David Dumaresq, 'Taking the Longer View: Timescales, Fairness and a Forgotten Story of Irrigation in Australia' (2014) 519, Part C *Journal of Hydrology* 2483, 2484.

[39] Warren Musgrave, 'Historical Development of Water Resources in Australia' in above n 22, 39.

reassessment of Indigenous peoples' rights and calls for stronger participation in water allocation and management frameworks did not occur until water law reforms grounded in environmental concerns were well underway.

IV. THE MURRAY DARLING BASIN REFORM PROCESS

In the 1980s, water reform gathered national momentum, largely in response to environmental degradation across the Murray-Darling Basin.[48] In concert, state water legislation began to include concepts of sustainability and integrated catchment management.[49] In 1994, as part of a broader productivity-based policy reform agenda, the Council of Australian Governments agreed to cap water entitlements,[50] improve transparency of water pricing, separate water from land and establish property rights to water, and allocate water to the environment.[51] The alignment of water reforms to national objectives was significant. As Australia has a federal system of government there is inevitable overlap in managing water with considerable tension between jurisdictions.[52] A series of high-profile environmental cases established that the Commonwealth

41 Mab*o v Queensland [No 2]* (1992) 175 CLR 1.

42 An initial Australian model is the *Irrigation Act* 1886 Vic vested the rights to water in the Crown in right of Victoria and enabled the Crown to control the flow and use of defined waters. Versions of this 'model' were adopted in other Australian jurisdictions. See D E Fisher, *Water Law* (LBC Information Services, 2000), 92.

43 See generally, Alexander Walter Gardner et al, *Water Resources Law* (LexisNexis Butterworths, 2009), Chapters 6 and 12.

44 Separation of water from the underlying land title is a key reform. See Council of Australian Governments, *Report of the Working Group on Water Resource Policy to the Council of Australian Governments* (Unpublished, February 1994).

45 Jon Altman and Francis Markham, 'Value Mapping Indigenous Lands: An Exploration of Development Possibilities' (Centre for Aboriginal Economic Policy Research, The Australian National University, 2013), 36.

46 *Mabo v Queensland [No 2]* (1992) 175 CLR 1, ('*Mabo*').

47 *Native Title Act 1993* (Cth), s223, and generally Part 2, Division 3.

48 Department of the Environment and Heritage, 'Integrated Water Resource Management in Australia: Case Studies - Murray-Darling Basin Initiative' (2004) <http://www.environment.gov.au/node/24407>.

49 See *Water Act 1989* (Vic) s1(b); *Water Management Act 2000* (NSW) s3; *Water Act 2000* (Qld) s10(1); *Natural Resources Management Act 2004* (SA) s7.

50 The Murray-Darling Basin Cap was finalised in 1997.

51 Australian Government National Water Commission, 'Water Markets in Australia: A Short History' (2011) <http://www.nwc.gov.au/__data/assets/pdf_file/0004/18958/Water-markets-in-Australia-a-short-history.pdf>.

52 *New South Wales v Commonwealth* (1975) 135 CLR 337.

Government could use 'indirect' constitutional legislative powers to support environmental legislation with respect to natural resources.[53]

In 2004, the reform process was codified as the National Water Initiative, and linked State achievement of water reform goals to the receipt of Commonwealth funding.[54] Significant outcomes of the National Water Initiative included commitments to: complete the separation of water rights from land; facilitate water trading; set aside legally protected water for the environment; and to return over-allocated systems to an environmentally sustainable level.[55]

The severe Millennium drought that affected much of south-eastern Australia from 1997 to 2009, including reduced allocations for irrigation and urban water use from 2002/03-2009/10,[56] led to ambitious water reform by the Commonwealth Government. The *Water Act 2007* (Cth) was a departure from the previous Commonwealth/State framework, which had been defined by co-operative federalism and intergovernmental agreements. Consequent upon a $10 billion water plan to save the Murray-Darling Basin,[57] the States eventually agreed to refer their constitutional powers to the Commonwealth, enabling it to pass its own legislation.[58] For the first time, the Commonwealth Government has specific water management responsibilities. From an environmental perspective, the three big changes were: (1) new organizations, in the form of the new Murray-Darling Basin Authority and the Commonwealth Environmental Water Holder; (2) a sustainable diversion limit on water extraction in the Murray-Darling Basin;[59] and (3) significant investment in water recovery for the environment, via purchase programs and investment in water efficiency.[60] While

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[53] See James Crawford, 'The Constitution and the Environment' (1991) 13 *Sydney Law Review* 11.

[54] COAG, *Intergovernmental Agreement on a National Water Initiative* (Council of Australian Governments, 2004).

[55] Ibid, paragraphs 23, 28, 35, 41 and 58.

[56] State of Victoria, 'Northern Region Sustainable Water Strategy' (Department of Sustainability and Environment, 2009), 16.

[57] 'PM Unveils $10b Plan for Water' *The Age* (25 January 2007) <http://www.theage.com.au/news/national/pm-unveils-10b-plan-for-water/2007/01/25/1169594409364.html?page=fullpage#contentSwap1>.

[58] *Water Act 2007* (Cth), see particularly ss9, 9A.

[59] Murray-Darling Basin Authority, 'Murray-Darling Basin Plan' (Commonwealth of Australia, 2012)

[60] Department of Sustainability, Environment, Water, Population and Communities, *Water For the Future* (19 July 2011) <http://www.environment.gov.au/water/australia/index.html>.

contested, there were significant environmental outcomes from the reform process but from an Indigenous perspective, these reforms resulted in few substantive measures.[61]

Significantly, water planning emerged as an important aspect of the National Water Initiative, following the passage of the Commonwealth *Water Act 2007*. Notably, the broader strategic planning function was instigated after many specific legal reforms in the National Water Initiative had already been undertaken. Changes to the nature of water entitlements and the separation of land holding and water 'rights' preceded much strategic-level planning at the catchment scale. The development of environmental water holdings and requisite institutional functions were driven as much by the response to drought as by forward planning. Nonetheless, the National Water Initiative achievements on water planning are impressive.

The National Water Initiative Policy Guidelines for Water Planning and Management (2010) were designed to assist those with responsibilities for water planning address competing demands on surface and ground water resources. 'Water planning' is an attempt to match water supplies and water demands, both present and future, so that water resources are managed in a reliable and environmentally sustainable manner. The guidelines contain overarching principles that include: water plans must incorporate a detailed assessment of the current and future availability and use of water; and that community stakeholders are to be actively consulted.[62] The Guidelines' requirements for environmental water allocations include that environmental flows must have the same level of legislative protection as consumptive water use,[63] while recognising the 'significant' economic value of water to irrigated agriculture, among other water users.[64]

V. RAMIFICATIONS OF WATER LAW REFORMS – OCCLUSION OF ABORIGINAL INTERESTS

While the National Water Initiatives achievements were substantial, it largely failed to make substantive change in Indigenous water rights or to effectively engage Indigenous peoples, especially in the early phases. The non-binding, policy character of the Initiative

61 Discussed below in V.

62 Council of Australian Governments, 'National Water Initiative Policy and Guidelines for Water Planning Management 2010' (COAG, 1 January 2010) 7–9.

63 Ibid 32–33.

64 Ibid 18.

meant that few substantive measures emerged to provide specific water-holding entitlements for Indigenous peoples.

Belatedly, the National Water Initiative provided that Indigenous peoples' water needs should be taken into account in the water planning processes, in the form of water allocations for 'traditional cultural purposes.' [65] Such purposes comprehend the maintenance of culturally important ecosystems — water for which should be allocated under either environmental regimes or through a non-tradeable environmental and public benefit water access entitlement.[66] The concept of 'cultural flows' seeks to achieve this objective in the Murray Darling Basin.[67]

Where Indigenous water users require water for commercial purposes, it is indicated that these entitlements may be acquired through market mechanisms, such as water trade and/or direct purchases of water entitlements and licences. The Policy Guidelines suggest costs may be partially borne by governments if they so choose.[68] To date, there has been minimal uptake of these options by Indigenous peoples, including in northern Australia. The inadequacy of the existing regulatory and policy framework for Indigenous involvement in water management and specifically in respect of commercial water rights is discussed below.[69] Nonetheless, the National Water Initiative principles, while lacking detail on substantive implementation, were a catalyst to draw attention to the occlusion of Indigenous peoples' interests that had occurred in the reform process.

As discussed above, the recognition and allocation of land rights to Indigenous people in the late twentieth century coincided with market-based water law reform in Australia, whereby water rights were separated, or 'unbundled', from land holding. As water rights were no longer connected to land, those Indigenous landholders that acquired land rights would not, as a matter of water law, acquire the right to use water on those lands in the manner they might have had their land rights been recognised or allocated prior to unbundling. Third parties, in contrast, could now obtain rights to use water on areas over

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65 Ibid 7–9. Refer to cls 28-34, 59.

66 Ibid 32.

67 See Murray Lower Darling Rivers Indigenous Nations and Northern Murray–Darling Basin Aboriginal Nations, *Agreed Definition of Cultural Flows* ,<http://www.mdba.gov.au>

68 Council of Australian Governments, above n 62, 32.

69 See VII A. 1. Substantive Commercial Rights to Water

which, for example, there may be recognised native title.[70] When the Council of Australian Governments agreed to unbundle water access entitlements from landholding, the opportunity to allocate a share of water rights to Indigenous landholders was not taken.[71] The absence of debate about Indigenous water rights in the early 1990s may be explained by preoccupation with the fledgling native title process, which at first showed great promise for the recognition of land and water rights alike.[72] The Australian native title recognition model for Indigenous land and water rights is the primary legal mechanism that deals with Indigenous rights to water in Australia.[73] Unfortunately, native title legislation and jurisprudence has developed in a particularly restrictive manner in Australia.[74] Native title legislation and case law were seen to preclude the potential for claims for commercial rights to water, and to restrict the exercise of native title water rights to traditional-cultural purposes, at the expense of commercial use.[75] Since the 2013 High Court decision of *Akiba*[76] some commentators predict that Australian native title jurisprudence will evolve to recognise a right to use water for any (including commercial) purposes.[77] However, *Akiba* has not been followed with a decision on water. Subsequent cases frame 'commercial water rights' in a particular limited sense, contemplating trade in or sale of resources themselves.[78]

[70] Elizabeth MacPherson, *Commercial Indigenous Water Rights in Australian Law: Lessons From Chile* (PhD, University of Melbourne, forthcoming).

[71] This may be contrasted with proposals to introduce unbundling and water markets in New Zealand Aotearoa in which Maori seek an equitable share of the available allocatable water quantity. See Marcus Sin, Kieran Murray, Sally Wyatt, 'The Costs and Benefits of an Allocation of Freshwater to Iwi' (Sapere Research Group, 2014) <http://www.iwichairs.maori.nz/Kaupapa/Fresh-Water/> 8.

[72] See generally Gardner et al, above n 43, 255.

[73] Indigenous land claim regimes, enacted in Australia since the 1970s, have also failed in this respect because they either overlook or preclude rights to take and use water for commercial purposes.

[74] See generally Lisa Strelein, *Compromised Jurisprudence: Native Title Cases Since Mabo* (Aboriginal Studies Press, 2nd ed, 2009).

[75] Australian Law Reform Commission, 'Connection to Country: Review of the Native Title Act 1993 (Cth)' (ALRC Report 126) http://www.alrc.gov.au/publications/alrc126, Chapter 8.

[76] *Akiba on behalf of the Torres Strait Regional Seas Claim Group v Commonwealth of Australia* [2013] HCA 33 ('*Akiba*').

[77] See, eg, Michael O'Donnell, 'Indigenous Rights in Water in Northern Australia' (Report, Project 6.2, Northern Australia Indigenous Land and Sea Management Alliance – Tropical Rivers aand Coastal Knowledge, Charles Darwin University, 2011).

[78] *BP (Deceased) on behalf of the Birriliburu People v State of Western Australia ('BP')* [2014] FCA 715; *State of Western Australia v Willis on behalf of the Pilki People* [2015] FCAFC 186.

Despite Indigenous land now exceeding 30 per cent of the total land in Australia,[79] Indigenous-held 'water access entitlements' are estimated at only 0.01 per cent of total Australian water allocations.[80] This imbalance between Aboriginal and Torres Strait Islander peoples' land-holding and extremely limited water 'rights' is an equation with particular significance for water development in northern Australia.

VI. Overview of the Current Northern Development Policy Position

Recent northern development plans have been labeled a continuation of the early ethos, a 'back to the future' of the engineering approach.[81] Turville et al suggest that the damming of the Ord involved 'scant regard' for either Aboriginal communities or the environment. All moves to develop northern Australia have 'tended to ignore the harsh realities of the true cost of pursuing such endeavours, financially, environmentally and culturally.'[82] The current planned expansion of the Ord River Irrigation Scheme into the Northern Territory, is deficient in the following ways, they say:

1. There are no publicly available environmental, social, or economic risk assessments;
2. The current regulatory authority only has powers to act in Western Australia despite the catchment being partially in the Northern Territory;
3. The plan is only for surface water, despite the physically connected nature of the surface water and groundwater resources;
4. Climate change risk had not been addressed.[83]

[79] Jon Altman and Francis Markham, 'Burgeoning Indigenous Land Ownership: Diverse Values and Strategic Potentialities' in Sean Brennan et al (eds), *Native Title from Mabo to Akiba: A Vehicle for Change and Empowerment?* (The Federation Press, 2015) 126.

[80] Jackson and Langton, above n 29.

[81] Crase, O'Keefe and Dollery, above n 1, 446. See also AC Turville, S Cullen and Poh-Ling Tan, 'Planning for the Future: Integrated Water Management in the Ord River Catchment' (2015) 41 *Water* 80; Head, above n 11; Morrison, Joe, 'Keynote Speech at Garma Festival' (Gulkula, 1 August 2015) <http://www.nlc.org.au/media-releases/article/keynote-speech-at-garma-festival>; Barry T Hart, 'Environmental Risks Associated with New Irrigation Schemes in Northern Australia' (2004) 5 *Ecological Management & Restoration* 106; Gibbs, above n 2; Stuart Blanch, 'Steps to a Sustainable Northern Australia' [2008] *Ecological Management & Restoration* 110.

[82] Turville, Cullen and Tan, above n 81, 2.

[83] Ibid 1–2.

A. The Commonwealth White Paper, 'Our North, Our Future'

The latest iteration of government plans to expand northern Australia is the Commonwealth Government's 'Our North, Our Future: White Paper on Developing Northern Australia'.[84] This White Paper speaks of increasing population and the northern economy by promoting fisheries and agricultural, cutting red tape, increasing business links with Asia, and promoting tropical medicine. In relation to water infrastructure, it states:

> Northern development depends on water. Up to 17 million hectares of land in the north have soils which are potentially suitable for agriculture, but there is only water sufficient to irrigate about one tenth of that area. Building the right water infrastructure in the right place will be crucial to realise the full potential of the north. Both surface and ground water in northern Australia serves a variety of functions, including cultural and spiritual use by Indigenous communities. River flows and groundwater are vital for supporting natural environments as well as other productive uses.[85]

The White Paper sets aside $200 million for water infrastructure, and to develop 'secure and tradeable water rights as part of a new National Water Infrastructure Development Fund'. It identifies irrigation and damming potential in river systems across Queensland, the Northern Territory and Western Australia, as well as opportunities to use groundwater in the Pilbara region of Western Australia.[86] It sets aside $5 million each for economic feasibility studies of the Nullinga Dam in Queensland and Ord Stage 3 in the Northern Territory and Western Australia.[87] Fifteen million dollars is allocated for studies on potential water infrastructure in the West Kimberley, Queensland's Mitchell River catchment and around the Darwin region.[88]

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[84] Australian Government, 'Our North, Our Future: White Paper on Developing Northern Australia' (18 June 2015) <http://industry.gov.au/ONA/WhitePaper/Documents/northern_australia_white_paper.pdf>.

[85] Ibid 40.

[86] Ibid 43–44.

[87] Ibid 53.

[88] Ibid 18.

The response to the White Paper's plans for water infrastructure has been mixed.[89] Aboriginal groups, similarly, have given diverse responses. The White Paper makes significant references to the need to consult properly with traditional owners, as well as emphasising the importance of Aboriginal-run projects, including indigenous ranger programs. It emphasises that:

> Indigenous Australians have native title rights in significant parts of northern Australia. Some 94 per cent of the landmass of north Western Australia is subject to a native title claim or determination, as is 62 per cent of north Queensland and 30 per cent of the Northern Territory.[90]

The White Paper was initially tentatively welcomed by the Northern Land Council (NLC),[91] primarily because it did not advocate a weakening of the *Aboriginal Land Rights Act 1976* (Cth).[92] The CEO of the NLC, Joe Morrison, later strongly argued that Aboriginal people had again been largely absent from the process:

> Aboriginal people have an essential stake in the future of northern Australia ... Aboriginal people must be front and centre in planning processes for the north. This is a fundamental gap in the national discourse about northern development ... I'm not one to despair, but I do wonder when the day will come that we have a seat at the planning table.[93]

Morrison identifies a long history of Aboriginal people being excluded:

> Ever since the north was settled — by conquest, not by consent — there have been a cascade of reports which have purported to map various El Dorados, just waiting to be discovered and developed by men of vision ... These are not empty lands ... Aboriginal people are not afraid of development. We want development, but we want it to be ethical.[94]

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[89] See for example, ABC Rural, 'Farmers cautiously welcome Federal Government's vision for northern Australia and call for bipartisan support', 18 June 2015, http://www.abc.net.au/news/2015-06-18/northern-australia-white-paper-ag-reactions/6554936

[90] Australian Government, above n 84.

[91] Northern Land Council, 'Northern Land Council cautiously welcomes White Paper', (Press Release 18 June 2015) http://www.nlc.org.au/media-releases/article/nlc-cautiously-welcomes-white-paper.

[92] Morrison, Joe, above n 81.

[93] Ibid.

[94] Morrison, Joe, 'Resilient Communities and Sustainable Prosperity – Northern Indigenous Development' (Townsville, 22 July 2015).

Since the White Paper, similar concerns have been expressed about the environmental impacts of expanded water infrastructure. A recent study into freshwater fish in the Kimberley region of Western Australia, for example, found that many endemic species in the region are particularly vulnerable to extinction should their habitat experience environmental changes.[95] The authors argue that lessons learnt from the Murray Darling Basin reform process point to the need to embed environmental values into northern development policy.[96]

VII. RECOMMENDATIONS

A. Water Rights for Aboriginal Peoples

1. Aboriginal Peoples and Strategic Water Planning

Insights from the Murray Darling Basin reform process highlight that detailed water resource assessments need to include not only technical assessments based on hydrology and ecology, but also community values, especially the cultural values of Indigenous peoples. It is not clear what facets of Aboriginal consultation will be adopted as part of the plans envisaged by the White Paper. Certainly, taking into account economic, social and environmental factors is a stated principle behind any proposed new water infrastructure.[97] However the detail of how that social impact will be measured or accounted for is uncertain. Previous northern development plainly failed to consult with Aboriginal people, or to effectively account for social and cultural impacts.[98] Consultation and participation processes must be significantly different in any new phases of development if it proceeds. Specific and culturally appropriate Aboriginal consultation and inclusion should occur because Aboriginal people are the demographic group most likely to be impacted by water development.[99]

Further, Aboriginal people are a major 'stakeholder group', with very high land-holdings across Northern Australia whose opinions, interests and aspirations must be catered for

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95 Matthew C Le Feuvre et al, 'Macroecological Relationships Reveal Conservation Hotspots and Extinction-Prone Species in Australia's Freshwater Fishes' (2016) 25 *Global Ecology and Biogeography* 176.

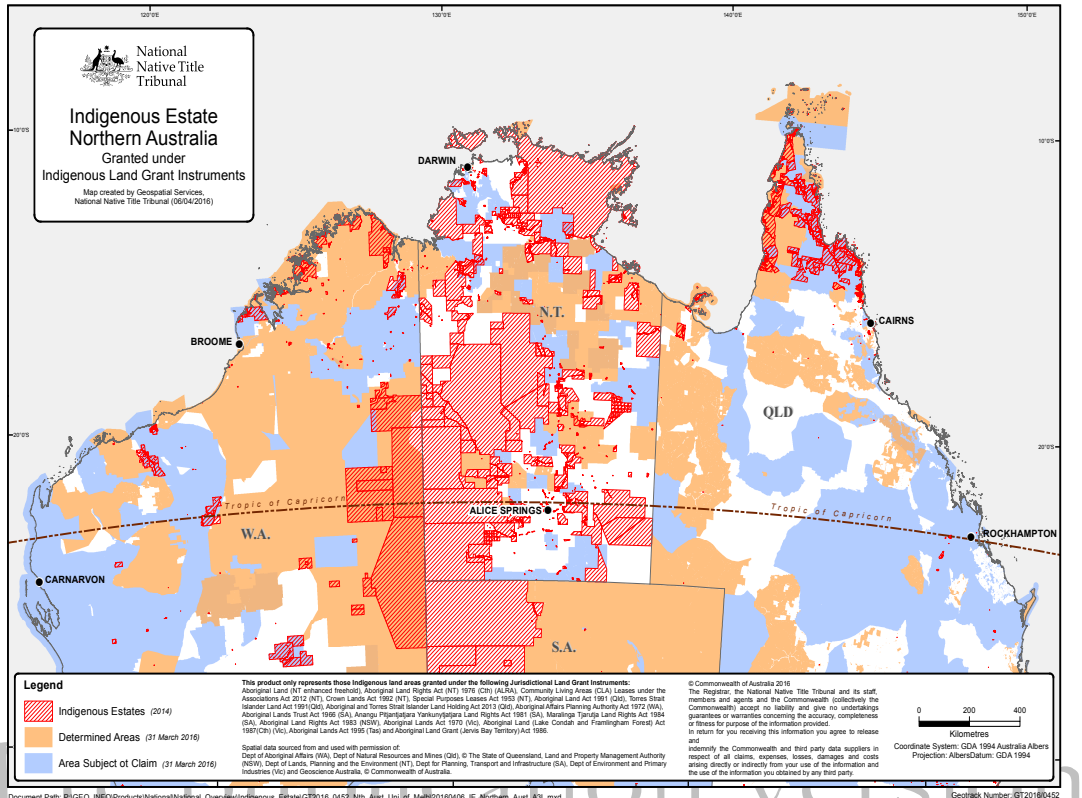
96 Matthew Le Feuvre et al, 'We Discovered 20 New Fish in Northern Australia – Now We Need to Protect Them' [2016] *The Conversation*.

97 Australian Government, above n 84, 51.

98 Romy Greiner, 'The Northern Myth Revisited: A Resource Economics Research Response to Renewed Interest in the Agricultural Development of the Kimberley Region' (Conference Paper, Annual Conference of the Australia Agricultural and Resource Economics Society, Sydney, 2000).

99 Ibid.

if governments are to equitably progress northern development. The map below highlights the extent of Aboriginal land holdings in Northern Australia.[100]



Additionally, the importance of Aboriginal consent to major developments is necessary because of the political power and effective organization around disputed projects that Aboriginal groups may exercise if consultation is inadequate or consent is not sought.[101] By and large, Aboriginal communities recognise a need for economic development as providing employment and long-term viability for their communities, although emphasising that, 'they are very determined to protect their country and sacred sites'.[102]

An important initiative in developing best practice consultation measures is the Tropical Rivers and Coastal Knowledge (Track) project. Poh Ling Tan and fellow researchers note, 'the inherent politicised risks in water planning mean that current methods of public participation such as information giving and allowing written submissions, are 'safer' and

[100] Map created by the National Native Title Tribunal, April 2016. The authors thank the National Native Title Tribunal for creating this map.

[101] Lily O'Neill, *A Tale of Two Agreements: Negotiating Aboriginal Land Access Agreements in Australia's Natural Gas Industry* (PhD, University of Melbourne, forthcoming).

[102] Australian Law Reform Commission, 'Connection to Country: Review of the Native Title Act 1993 (Cth)' (126, Australian Law Reform Commission, 4 June 2015) 54.

more easily managed'.[103] By contrast, the Track research, involving extensive consultation with Aboriginal communities in Northern Australia, substantiates the need for collaborative processes to ensure Aboriginal peoples and multiparty confidence in the water planning outcomes.[104]

Similarly, the consultation process developed for the proposed Kimberley Browse liquefied natural gas (LNG) development went beyond typical public participation processes. In 2006, then Western Australian Premier Alan Carpenter said that the Kimberley Browse development would only go ahead with the support of Kimberley traditional owners and would be 'a dialogue, not an imposition or a demand'.[105] The initial level of political commitment to obtaining Aboriginal consent was viewed in some quarters as giving Aboriginal people a de facto veto over the Browse LNG development.[106]

A 'Northern Development Taskforce' was set up by the Western Australian government in June 2007 to consult with traditional owners, gas companies, scientists, environmentalists and the community about whether an acceptable site could be found for the proposed Kimberley Browse liquefied natural gas development. Significant state government funds were allocated to this consultation process.[107] The Kimberley Land Council led the Aboriginal consultations for this laudable year-long process.[108]

Whether further expansion of water infrastructure should take place in northern Australia also is likely to be strongly contested. An effective process for engaging Aboriginal peoples is vital, but the broader exclusion of Aboriginal interests from

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[103] Ibid.

[104] Sue Jackson, Poh-Ling Tan and Sharna Nolan, 'Tools to Enhance Public Participation and Confidence in the Development of the Howard East Aquifer Water Plan, Northern Territory' (2012) 474 *Journal of Hydrology* 22, 22.

[105] Western Australian Parliamentary Debates, Legislative Assembly, 21 November 2006, 8443c-8443c (Alan Carpenter, Premier).

[106] For example, this position was described as akin to a veto by then opposition leader and later Premier Colin Barnett, quoted in Australian Broadcasting Corporation, 'Bran Nue Deal', *Four Corners*, 22 September 2008. The level of political commitment to obtaining Aboriginal consent for the project declined following a change of government in 2008 but remained important, see Lily O'Neill, 'The Role of State Governments in Native Title Negotiations: A Tale of Two Agreements' [2014] *Australian Indigenous Law Review* 29.

[107] A submission to Western Australia's parliament stated the cost of Browse LNG negotiation to May 2012 was $40.4 million, of which Woodside contributed $16 million: 'Ms G McGowan, Hansard of the Legislative Assembly Estimates "A", 29 May 2012'. See O'Neill, above n 101.

[108] O'Neill, above n 101.

commercial uses of water must also be addressed. Complex questions about the interplay of environmental priorities and Aboriginal interests in water also are likely to arise.

2. Aboriginal Peoples' Water Rights

The White Paper draws a direct correlation between water rights and long-term sustainable development, perhaps assuming that Aboriginal landholders will benefit from pursuing through irrigated agriculture.[109] It provides:

> The Commonwealth Government supports northern jurisdictions taking actions that support Indigenous Australians to derive greater economic benefits from water on Indigenous land. Water can provide opportunities for Indigenous Australians in diverse areas such as aquaculture, nature based tourism and intensive horticulture. Access to water can also provide an opportunity to participate in water markets, where they exist.[110]

It builds on other Commonwealth discussion papers that underscore the need for commercial water rights for Aboriginal economic development.[111]

Water resources in northern Australia remain, for the time being, plentiful. A prerequisite of market implementation is 'full' allocation of entitlements within the relevant water system. An important lesson from the experience in the Murray Darling Basin is that it is essential to set aside a share of water access entitlements for future allocation to Indigenous groups prior to those resources reaching full allocation with the resulting expense and difficulty of buy-backs. If the rights Aboriginal peoples have to water are not factored into planning for water markets in northern Australia, Aboriginal peoples will once again be excluded from their benefits. Allocating a share of available water allocations to Aboriginal peoples is not only a necessary imperative of distributive justice, it may in fact support the implementation of clear and transferable water rights and markets, by improving the certainty of all water access entitlements which might otherwise be subject to Indigenous claims.[112]

Aboriginal peoples water rights must have the same level of legal protection and security as other water users' rights. Most legal and policy debates about Indigenous water

[109] Ibid 41, 46.

[110] Ibid 47.

[111] Australian Government, 'Position Statement: Indigenous Access to Water Resources' (National Water Commission, 2012) <http://www.nwc.gov.au> 1-2.

[112] See, eg, Jon Altman, 'Indigenous Interests and Water Property Rights' (2004) 23(3) *Dialogue* 29, 30.

interests in Australia, especially in the Murray Darling Basin, present the interests as having a 'traditional-cultural' character.[113] Current legal mechanisms providing for Indigenous water rights clearly do not effectively support the use of water by Aboriginal persons for commercial purposes, focusing instead on cultural and environmental interests.[114] These are important values that merit protection, but a broader perspective that takes into account the history of exclusion from culturally appropriate economic opportunities in Northern Australia is required.

To respond to this distributive injustice, governments cannot just rely on the limited native title model.[115] Aboriginal peoples' water rights should have the same characteristics as the rights to water that were available to non-Indigenous users since the time Australia was colonised, giving Aboriginal people the choice whether to exercise them for cultural or economic development purposes.

B. Embedding Environmental Values

The lessons of the national water law reforms to address over-allocation and sustainability that occurred in the south need to be applied to northern water development whilst acknowledging the different contexts. Remarkably, the current White Paper is almost completely silent on the issue of environmental flows, beyond the brief acknowledgment of the need for a sustainable limit on extractions.

The experience of the Murray Darling Basin indicates that it is much easier to protect existing environmental flows than to restore these flows in the future. Firstly, it is procedurally less complex to implement flow protection mechanisms based on new rights than it is to change the water rights of existing users -- and much less expensive.[116] However, protection of environmental flows as part of the initial water planning and allocation requires significant upfront investment in understanding the water resources,

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[113] Katie O'Bryan, 'The National Water Initiative and Victoria's Legislative Implementation of Indigenous Water Rights' (2012) 7(29) *Indigenous Law Bulletin* 24; Patricia Lane, 'Native Title and Inland Waters' (2000) 4(29) *Indigenous Law Bulletin.* See generally Australian Human Rights Commission, '2008 Native Title Report' (Report, Human Rights and Equal Opportunity Commission, 2009) <http://www.humanrights.gov.au >, chp 6, 173.

[114] Murray Lower Darling Rivers Indigenous Nations and Northern Murray–Darling Basin Aboriginal Nations, above n. 67.

[115] MacPherson, above n 70.

[116] T. Le Quesne, E. Kendy and D. Weston, 'The Implementation Challenge: Taking stock of government policies to protect and restore environmental flows' (World Wildlife Fund UK, 2010) M. Acreman et al, 'Environmental flows for natural, hybrid, and novel riverine ecosystems in a changing world' (2014) 12 *Frontiers in Ecology and the Environment* 466; see also Commonwealth of Australia, 'Securing Our Water Future' (Australian Government Department of the Environment, Water, Heritage and the Arts, 2010)

the ecology and the social and cultural values of the affected area. This is an imperative for northern Australia given the relative paucity of scientific data and monitoring, when compared to the southern basin states.[117]

1. *Environmental Water Protection and Management in the North*

In 2004, the National Water Initiative recognised the need to ensure that environmental rights to water had the same level of legal protection and security as that of other water users' rights (even if they were not necessarily the same type of legal instrument). The White Paper commits to creating secure, tradeable rights to water for water users in the north, which in equivalent terms means that environmental water rights need to be similarly secure; and ideally at least some of them will be tradeable rights.

There are several critical insights from the long, costly and as yet unfinished attempts to provide adequate environmental water in the Murray-Darling Basin that need to be included in any water planning that supports further water resource development. Australia is arguably one of the world leaders in the implementation of environmental flows.[118] Long experience in the south[119] has demonstrated that establishing and maintaining adequate environmental flows to protect both the resource base and the ecological functions of the water dependent ecosystems is much more complex than the White Paper suggests.

Environmental flows need to be identified and protected using a range of legal mechanisms, all of which need to comply with the National Water Initiative's requirement of adequate legal security. As a minimum, these mechanisms should include: a cap on water extraction, conditions on dam location and operation, and a minimum flow or environmental water allocation to protect the environment during dry years.

Capping water extraction will protect the important high flow events on which the northern water dependent ecosystems rely. Not only will this facilitate trade, but setting a conservative cap will encourage high value, efficient water uses initially, whilst also enabling the potential for the cap to be raised in future (if warranted). This cap needs to

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117 Alison J. King et al, 'Improving Ecological Response Monitoring of Environmental Flows' (2015) 55 *Environemntal Management* 991; Barry Hart, 'Environmental Risks Associated With New Irrigation Schemes in Northern Australia' (2004) 5(2) *Ecological Management and Restoration* 107

118 R. Q. Grafton, G. Libecap, S. McGlennon, C. Landry and B. O'Brien, 'An integrated assessment of water markets: a cross-country comparison' (2011) 5(2) *Review of Environmental Economics and Policy* 219

119 Daniel Connell, and R. Quentin Grafton (ed), *Basin Futures: Water Reform in the Murray-Darling Basin* (ANU E Press, 2011)

be expressed as a proportion of the available flow rather than an absolute volume, so that it continues to protect environmental flows during dry years as well as wet years.

On-stream dams are widely recognised as having a severely detrimental effect on downstream ecosystems.[120] Although water quantity can be recovered in future, one of the critical lessons from the Murray-Darling Basin on-stream dams is that reducing the effect of large on-stream dams on the timing and frequency of flow events is extremely challenging once the dams are in operation.[121] Seasonal flow inversion is a significant problem for the southern rivers downstream of large dams. It has proven almost impossible to address.[122] Dams need to be located to minimise environmental impacts, and where possible, should be off-stream. On-stream dams need to be operated to protect the seasonality, frequency and duration of important flow events.

The environment is adapted to variability, and dry years (including cease-to-flow events) are often an essential element for a healthy ecosystem,[123] but the frequency and duration of dry years will be increased by water extraction. Climate change is likely to alter the frequency and duration of droughts and extended dry periods.[124] The crucial role of groundwater in northern Australia as a critical reserve also must be recognised.[125] In these situations it will be necessary to protect the critical drought refuges to enable ecosystems to respond when water availability improves once more. Establishing a minimum flow release from on-stream dams, and creating environmental water rights is

120 Millennium Ecosystem Assessment, 'Ecosystems and human well-being: wetlands and water synthesis' (World Resources Institute, 2005); World Commission on Dams, *Dams and development: a new framework for decision-making* (Earthscan, 2000)

121 There have been improvements in dam operations in the USA, but this has taken many years, see US Army Corps of Engineers and The Nature Conservancy, 'Sustainable Rivers Project: Improving the Health and Life of Rivers, Enhancing Economies, Benefiting Rivers, Communities and the Nation' (US Army Corps of Engineers,The Nature Conservancy,, 2011); Brian D. Richter and Gregory A. Thomas, 'Restoring environmental flows by modifying dam operations' (2007) 12(1) *Ecology and Society* [online] URL: http://www.ecologyandsociety.org/vol12/iss1/art12/

122 Although there has been persistent calls to address the issue, so far there has been little success; see for example, T. Hillman, 'Ecological requirements: creating a working river in the Murray-Darling Basin' in L. Crase (ed), *Water Policy in Australia: The Impact of Change and Uncertainty* (Resources For the Future, 2008)

123 Avril Horne, John Freebairn and Erin O'Donnell, 'Establishment of environmental water in the Murray-Darling Basin - an analysis of two key policy initiatives' (2011) 15(1) *Australian Journal of Water Resources* 7

124 W. Steffen, 'Thirsty country: climate change and drought in Australia' (Climate Council of Australia, 2015).

125 Groundwater is covered more fully in Paul Martin #, in this volume.

an extremely effective mechanism of ensuring that the environmental managers have the capacity to respond flexibly in dry periods, and to meet ecological needs efficiently.[126]

Thirdly, environmental water needs to be managed effectively and efficiently to deliver the maximum benefit for the available water.[127] Environmental water management occurs within a nested governance arrangement, with interactive partnerships between catchment managers, water resource planners, river and storage operators and the community.[128] These relationships are complex and need to be addressed at the outset. At the federal level, the Commonwealth Environmental Water Holder (CEWH) operates as the single decision-maker for the use of environmental water rights each year.[129] A single organization responsible for implementation helps to streamline decision-making, achieve economies of scale in environmental water management and enhances accountability by having an identifiable decision-maker.[130] Given the level of federal investment in developing water rights in Northern Australia, establishing the CEWH as the responsible environmental water manager for this region would appear logical.

VIII. CONCLUSION

Internationally, Australia is regarded as a highly innovative water manager — with much of this credential tied to the extensive law reforms initiated under the National Water Initiative in the Murray-Darling Basin. While debates continue about the level of effectiveness of these reforms in achieving long-term sustainability, many valuable processes and principles emanated from the process. Current policy papers on northern development show little consideration of the lessons emanating from the reform in the Murray-Darling Basin. The lack of strategic planning and the failure to expressly adopt environmental water reforms are a cause for concern. Any future development of northern water resources needs to include a framework for embedding environmental values in water planning, creating legal rights to environmental water to protect existing

126 Avril Horne, *An approach to efficiently managing environmental water allocations* (PhD Thesis, University of Melbourne, 2009).

127 Avril Horne et al, 'Using an economic framework to inform management of environmental entitlements' (2009) 26 *River Research and Applications* 779

128 Dustin Garrick, Chelsea Lane-Miller and Amy L. McCoy, 'Institutional Innovations to Govern Environmental Water in the Western United States: Lessons for Australia's Murray–Darling Basin' (2011) 30(2) *Economic Papers* 167; D. Garrick and E. O'Donnell, 'Exploring private roles in environmental watering in Australia and the US' in J. Bennett (ed), *Protecting the Environment, Privately* (Forthcoming, 2015)

129 *Water Act 2007*, ss104-5.

130 Erin O'Donnell, 'Institutional reform in environmental water management: the new Victorian Environmental Water Holder' (2012) 22 *Journal of Water Law* 73; Erin O'Donnell, 'Australia's environmental water holders: who is managing our environmental water?' (2013) 28(3) *Australian Environment Review* 508

ecological values, and establishing a system of governance to promote the effective and efficient use of environmental water.

The current policy needs to be scrutinised from the perspective of impacts upon Aboriginal peoples, and also in terms of substantive opportunities for Aboriginal people to be involved in water planning processes, and to be part of water entitlement allocations and corresponding economic benefits. The development of the policy platform offers a window for Aboriginal peoples, if effectively supported to do so, to be an integral element of any strategic planning for the further expansion of water resources in northern development.